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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Re: Patent Application to be filed under 35 U.S.C. par. 120 as a Continuation-In-Part Application of  
International Patent Application No. PCT/EP00/00920 filed on  
05/Feb./00 and claiming priority of German Patent Application No. 199 06 559.4 filed on 15/Feb./99.

Docket No.: K 182  
Inventors: Wolfgang Eppler, Thomas Fischer

Title: DIGITAL ELECTRONIC METHOD FOR INCREASING THE CALCULATION ACCURACY  
IN NON-LINEAR FUNCTIONS AND HARDWARE ARCHTECTURE FOR CARRYING OUT  
SAID METHOD

Honorable Commissioner of Patents and Trademarks  
Washington D.C. 20231  
BOX PATENT APPLICATION

July 9, 2001

TRANSMITTAL LETTER FOR NEW PATENT APPLICATION UNDER 35 U.S.C.-119

Sir:

Please find enclosed herewith the following documents relating to the above-identified case:  
Priority of German application 199 06 559.4 is claimed

1. Specification including 14 pages with 4 claims, 1 drawings
  2. Declaration and Power of Attorney
  3. Assignment and Recordation Form Cover Sheet ✓
  4. A return postcard for acknowledgement of receipt
  5. Certified copy of basic German application
  6. Information Disclosure Statement (Form PTO-1449)
  7. Copy of Preliminary Examination Report and Translation of Report
- Small Entity Status is claimed.**

The fees involved are as follows:

	Basic fee	Total fee
Small Entity	\$355.--	\$355.--

Please charge the fee as well as any additional fee related to this application to deposit account No: 500465

Respectfully submitted,

*K. Bach*

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JC997 U.S. PTO  
09/902855

07/12/01

**Translation of the international preliminary examination report**

Int. Ref. No.  
PCT/EP00/00920

**I. Basis of the report**

1. This report has been prepared on the basis (substitute pages which have been supplied to the Office as a result of a request in accordance with article 14 are considered in this report as "originally filed" and are not attached because they do not contain any changes.)

Description, pages

2-9 as originally filed

1,1a received on 12/15/2000 with letter dated 12/12/2000

**Patent claims No.**

1 (part), 2-4 as originally filed

1,(part) received on 12/15/2000 with letter dated 12/12/2000

**Drawings, sheets:**

1/1 as originally filed

2. Concerning the **language**: All the parts mentioned above were available to the Office in the language in which the international application was filed if not said otherwise below.

The parts were available to the Office in the language: or, respectively were filed in this language; that is as follows

[ ] The language of the translation which was filed for the purpose of the international Search (in accordance with rule 23.1(b)).

[ ] The publication language of the international application (in accordance with rule 48.3(b)).

[ ] The language of the translation, which was filed for the purpose of the preliminary international examination (in accordance with rule 55.2 and/or 55.3)

3. Concerning the nucleotide- and/or amino-acid sequence disclosed in the international application, the preliminary international examination was performed on the basis of the sequence protocol, which:

☐ Is contained in the international application in written form.

☐ Was filed together with the international application in computer-readable form.

☐ Was filed later with the Office in written form.

☐ Was filed later with the Office in computer-readable form.

☐ The statement, that the later filed written sequence protocol does not include subject matter beyond that disclosed in the original application at the time of filing, was submitted.

☐ The statement, that the information provided in computer-readable form correspond to that included in the written protocol, was submitted.

4. As a result of alterations the following documents became invalid:

☐ Description: Page/s:

☐ Claims: No.

☐ Drawing sheets/Fig. No.:

5. ☐ This report has been prepared without consideration of (some of) the alterations, since, because of the reasons given, the Office believes that they exceed the content of the application as originally filed (rule 70.2 c).

6. ☐ Possible additional comments:

**V. Reasoned statement according to Art. 35{2} with regard to novelty, inventive activity and commercial applicability; References and explanations in support of the statement**

1. Statement

Novelty	yes:	Claims 1-4
	no :	Claims
Inventive activity (ET)	yes:	Claims 1-4
	no:	Claims
Commercial applicability (GA)	yes	Claims 1-4
	no:	Claims

2. Documents and explanations

**See attachement**

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

### Concerning point V

#### **Reasoned statement with regard to novelty, inventive activity and commercial applicability**

1. Reference is made to the following document:

D1: Forschungszentrum Karlsruhe, Wissenschaftliche Berichte, FZKA 6251, 1/1999, Fischer: "Optimierte Implementierung neuronaler Strukturen in Hardware" Pages 70-75; [http://hikwww4.fzk.de/hbk/literatur/FZKA\\_Berichte/FZKA6251.pdf](http://hikwww4.fzk.de/hbk/literatur/FZKA_Berichte/FZKA6251.pdf), 'downloaded' on 05/22/2000. XP002138370

2. Claim 1 complies with the requirements of the article 33 PCT.

In the state of the art, D1, a binary number representing an input word is converted in a suitable process into an output word, in which the position of the decimal point is coded in the word itself. D1 describes possible codings of different positions for the point but does not provide any other details for a "suitable process".

It is the object of the invention to provide a method for operating an electronic system, with which the computation accuracy for non-linear functions can be increased and to provide an electronic system, with which the method can be performed in a time-optimal manner.

This object is solved by the features of claim 1

The solution is not known in the state of the art nor is it apparent therefrom.

The object to be solved by the present invention can therefore be seen in the fact that, at a time, the material to be measured can be supplied to a pre-selected one of the several capillaries.

The solution for this object proposed in claim 1 of the present application is based on inventive activity for the following reasons (Article 33(3) PCT):

No melt distributor with more than one transverse passage is disclosed in the documents cited in the international search report.

A distributor ("switching disc 50") which could be a melt distributor and which has the shape of a cylindrical body is disclosed in the document D3 (see Fig. 2), but the melt distributor of the present application is inventive with respect to the one disclosed in D3. The melt distributor of the present application differs from the distributor disclosed in the document D3 in that it includes more than one transverse passage. This permits a faster selection of the capillary with smaller movement of the distributor.

Claim 1 is therefore novel (Art. 33(2) PCT) and inventive (Art. 33(3) PCT).

The claims 2-10 depend on claim 1 and consequently fulfill also the requirements of of the PCT with regard to novelty and inventive activity.

The claim 11 defines a method for measuring the viscosity of plastic materials. The method utilizes the apparatus defined in claim 1 and is therefore also novel and inventive.

#### **Concerning point VII**

##### **Certain deficiencies of the international application**

According to Rule 11.13 m) PCT the same feature must be indicated by the same reference numeral throughout the whole application. This requirement is not fulfilled with the use of the melt pump (reference numeral 13 on page 8, line 23; page 9, line 24 and Fig. 1, but reference numeral 25 on page 11 and Figs. 2 and 3), reference numeral 53 (pressure chamber in the 5<sup>th</sup> paragraph, page 10, and Fig. 6, but rheometer on page 10, last line and Fig. 7).

The reference numerals "30, 31 and 32" on page 10 should be "31, 32 and 33 (30 is the melt distributor).

The expression "preferably" on page 5, fourth paragraph (column 3) should be removed.

#### **Concerning point VIII**

##### **Certain deficiencies of the international application**

##### **Claims 1 and 11**

The use of the word "continuous" is misleading and claims 1 and 11 are therefore not clear (Art. 6 PCT). The measuring and the melt flow can only be continuous, when the melt distributor is in the position as shown for example in Fig. 4. Upon rotation of the melt distributor, there are positions, in which there is no melt flow. The melt flow can therefore not be considered to be "continuous".

##### **Claim 4**

It appears that the transverse passages are part of the melt distributor. It is therefore not clear, whether the "melt distributor" referred to in the description is "rotationally symmetrical", since the transverse passages do not provide for symmetry.

##### **Claim 8**

There are only two positions in claim 8. It appears therefore that there are only "two capillaries". The claim should therefore be so re-formulated, that it is made clear, that there are only "two capillaries".

##### **Claim 9**

Claim 1 can be dependent only from one of claims 7 or 8, since only these claims provide a basis for "drive".

It is not clear what the cylinder axis of the extruder is.

**Claim 10**

Claim 10 can depend only on claim 9. There is no reference in the other claims to "extruder".